3.5 Agricultural Crops and Livestock

This section presents information regarding existing conditions and potential impacts on agricultural crops and livestock within the proposed project vicinity due to construction and operation of the Cogen. Appendix H has additional information on vegetation, habitat, and other site conditions. Appendix G has additional information on geology and soils.

3.5.1 Existing Conditions

3.5.1.1 Agricultural Land

The Natural Resources Conservation Service (NRCS) defines prime agricultural land as "land that has the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, livestock, timber, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and/or labor. Prime farmland does not include land already in or committed to urban development or water storage. In general, states have already-identified soil map units that are prime (NRCS website).[1]"

Prime agricultural land in Whatcom County is divided into five categories (Whatcom County Comprehensive Plan, 1993) based on soil classification by the NRCS. The categories include:

- Category I – All areas are prime farmland
- Category II – Prime farmland when drained
- Category III – Prime farmland when protected from flooding
- Category IV – Prime farmland when irrigated
- Category V – Prime farmland when drained and protected from flooding

Farmland in the vicinity of the project is within Category I and II, and based on mapping completed by Whatcom County the Cogeneration site would partially fall within Category I. See Figure 3.5-1 for Whatcom County Prime Agricultural Soils and Designated Agricultural Land Map.

Whatcom County has also designated Agricultural Protection Overlay (APO) soils, open space, and protection areas. The purpose of the APO is to promote and encourage commercial agriculture, provide a reasonable mix of uses and provide for a variety of land uses, which are not inconsistent or incompatible with agricultural activities. The project site is partially within the APO soils category, but not in the open space or protection area. See Figure 3.5-2 Whatcom County APO categories.

3.5.1.2 Agricultural Crops

In 1997, the U.S. Department of Agriculture (USDA) reported 1,228 farms with a cumulative total of 103,600 acres of farmland in Whatcom County (USDA, 2000). The number of farms and amount of agricultural cropland has decreased over the past

[1] NRCS Website – www.info.usda.gov/nrcs/fpcp/faq.htm#7

decade. Crop farms and acreages per crop are given in Table 3.5-1. Crops are dominated by berries, hay-alfalfa, wheat, and potatoes. According to the 1997 Census of Agriculture (AC97S-3r), Ranking States, and Counties, Whatcom County ranks 6th in the state and 95th in the country for value of agricultural crops sold (USDA, 1997).

TABLE 3.5-1

Crop Cultivation, Total Number of Farms, Acreage Harvested, and Yield

Crop[1]	Farms	Acres Planted	Harvested Yield
Wheat	8	626	50,914 bushels
Hay-Alfalfa	658	40,910	146,740 tons
Corn	8	D	4,884 bushels
Potatoes	12	1,585	475,550 hundred wt.
Strawberries	14	297	2,306,552 lbs.
Raspberries	107	5,255	36,500,750 lbs.
Tame Berries	27	482	2,671,318 lbs.
Fruit Orchards	58	419	D

1. 1997 USDA Data, Source USDA website, www.nass.usda.gov
2. D = Data unavailable

In addition to the above crops, tree farming constitutes another cropping activity in Whatcom County. Excluding state and national forests, some agricultural land in Whatcom County is used for tree farming including growing of Christmas trees and hybrid softwood trees for harvesting as pulpwood. However, there are no data available on the actual number of acres dedicated to tree farming throughout Whatcom County (Craig MacConnell, personal conversation).

3.5.1.3 Agriculture Production in the Vicinity of the Project Site

From 1989 to 1991, BP planted approximately 142 acres of hybrid poplar trees on the Cherry Point refinery property for future harvesting as pulpwood. See Figure 3.5-3 for the approximate location of the tree planting near the project site. No records are available to confirm the density of the planting or actual numbers of trees planted by BP on the Refinery property. BP has not actively managed the hybrid poplar tree crop since the original planting.

Visual inspections that occurred during wetland and wildlife surveys revealed that approximately 30 acres have succeeded in growing into dense stands in the easterly portion of the planted area, east of the footprint of the proposed Cogeneration Project and closer to the railway crossing near Chemco Industries. Tree heights within this area, which are outside of the limits of the proposed Cogeneration Project development, are fairly uniform at approximately 45 to 50 feet high with a diameter-at-breast-height (dbh) ranging from approximately 6 to 10 inches. Most of these trees have straight uniform trunks.

In comparison, the planted hybrid poplars within the footprint of the proposed Cogeneration Project exhibit poorer growth characteristics and less frequent spacing.

Figure 3.5-3 shows approximate locations of failed planting areas. These are generally concentrated west of the proposed access road and east of the Blaine Road right-of-way.

Trees in the western portion of the area, coinciding with the footprint of the proposed Cogeneration Project east of the Blaine Road right-of-way are generally less than 40 feet tall, although they have a similar diameter as those further east of the proposed footprint of the Cogeneration plant. Several of the trees in this area exhibit split or forked trunks.

Tree density in the eastern portion of the planting is approximately 4 trees per 100 square feet. By comparison, tree density in the western portion of the planting, is inconsistent, completely lacking growth in some areas, and up to 3 to 4 trees per 100 square feet in an area immediately east of the Blaine Road right-of-way and south of Grandview Road.

Currently, BP has no plans or schedules to harvest any of the planted hybrid poplar trees, except for those that may be removed for construction activities. The decline in the demand and price for pulp is a disincentive to harvest the trees for pulp at this time. At the end of 2000 and into 2001, there has been an erosion of prices and production. Market pulp prices are close to cycle lows and PriceWaterHouseCoopers forecasts that low cost foreign mills will keep downward pressure on both pulp and paper prices (PriceWaterHouseCoopers, 2001). At this time, BP intends to leave some of the poplar trees on the northern edge of the project site in place as an aesthetic buffer between Grandview Road and the proposed Cogeneration plant.

3.5.1.4 Livestock

In 1997, the USDA reported 800 farms, with 120,652 total animals, that participated in livestock and poultry production in Whatcom County. Table 3.5-2 provides information on specific livestock production in Whatcom County. Milk cows and chickens comprise most of the livestock within the County. Whatcom County is ranked 3rd in Washington State in the commercial value of livestock and poultry production. There are no fisheries or aquaculture practices in Whatcom County.

TABLE 3.5-2

Livestock Production in Whatcom County

Livestock Produced[1]	Total Number of Farms	Total Number of Animals
Beef cattle	334	4,748
Milk cows	307	64,162
Hogs and Pigs	36	350
Sheep and Lambs	40	406
Broilers and Other Chickens	9	3,127,984

1. 1997 USDA Data, Source: USDA website, www.nass.usda.gov

3.5.1.5 Other Agricultural Practices

There are no irrigation systems in the vicinity of the project site. BP-owned land north of Grandview Road is used to grow hay under contract with local farmers. Other than the annual harvesting of hay, there are no other annual cropping cycles.

3.5.2 Environmental Impacts of the Proposed Alternative

3.5.2.1 Agricultural Lands

Prime Farmland

Despite being zoned as "Heavy Impact Industrial," a portion of the project site is designated as prime farmland soils based on the Whatcom County Comprehensive Plan (1997). Although the mapping of the area is not precise, it appears that the area planted with hybrid poplars falls within the Prime Farmland Category I. However, an evaluation conducted prior to planting the hybrid poplars (See attachment to Appendix H) indicates that the productivity of the land is limited. In addition, this area does not qualify as prime farmland under the NRCS definition because it has been dedicated to future urban uses (heavy impact industrial). Impacts related to specific project actions are described below.

Proposed Plant Site and Access Roads

The proposed plant site has not been used for agricultural cultivation for approximately 30 years since the construction of the Refinery, with the exception of the area of the hybrid poplar trees that were planted by BP in 1989-91. The existing grassland immediately to the west of the planted poplar trees and east of the Blaine Road right-of-way has not been cultivated since BP purchased the land in the 1960s. Nearby lands are also fallow agricultural fields.

Historically the project site was used as pasture and agricultural lands. Approximately 0.5 acres (0.1% of the total planted area) of existing hybrid poplars within Wetlands A and H would be harvested by the construction of the Cogeneration plant and associated laydown areas. The poplar trees within the footprint of the proposed Cogeneration unit are of marginal quality as indicated by their poorer survivability, increased spacing (i.e.

less dense stands), and stunted growth relative to the eastern portions of the plantation that lie east of the footprint of the Cogeneration Project. The hybrid poplars within Wetland A are within the plant site boundary and those within Wetland H are located within construction laydown areas. The poplars within Wetland H are very sparse and immature.

If a Forest Practice permit is required for the harvest of the hybrid poplar trees, then one will be obtained prior to harvesting.

There is currently no livestock production on the proposed plant site. North of Grandview Road and east of Blaine Road, BP leases land to local farmers for cattle grazing and hay production. These agricultural uses will be impacted by the wetland mitigation plan to be implemented in that area. The impacts cannot be quantified at this time because the final mitigation plans and requirements will be determined during the EFSEC process. However, it is anticipated that, even with some acreage taken out of agricultural use for wetland mitigation, the remaining acreage would be sufficient to maintain the current level of cattle grazing without overgrazing.

Project construction would result in a direct and permanent net loss of approximately 1.5 acres of agricultural land currently used for the hybrid poplars. Relative to the total available agricultural land in Whatcom County, the loss of agricultural land as a result of the proposed project is considered negligible.

Compression Station and Construction Lay Down Areas

The gas compressor facility and construction laydown areas are located within the BP Cherry Point Refinery boundaries. No agricultural crops or livestock are associated with these areas.

Transmission Line

There would be no loss of agricultural production due to the installation of transmission lines associated with the project. Although the proposed locations of the transmission line and gas line interconnection are within historic agricultural lands, these areas have not been used for either crops or livestock grazing for approximately 30-years.

3.5.2.2 Air Impacts

Air emissions from the Cogeneration plant that have the potential to effect agricultural areas and livestock include primary particulate matter and secondary formation of ammonium nitrate and ammonium sulfate. Air emissions impacts from plant operations are addressed in Section 3.2 and Appendix E. As shown in those sections, air quality impacts in the area (including plant operations) will be below the secondary ambient air quality standards that were promulgated to protect public welfare, including agricultural lands.

~~Air~~Water-cooled condensers will be used for cooling and condensing low-pressure steam from the steam turbine. These condensers will be designed and operated to minimize potential ~~do not create the~~ drift that is typically associated with water-cooling towers. ~~Therefore, t~~There will be ~~no~~ negligible impact to agricultural crops or livestock from drift

emissions. Based on the results of the air dispersion modeling analyses, facility emissions are expected to have a negligible effect on soils and vegetation. The Project would combust only low-sulfur natural gas fuel, thus minimizing the emission of sulfur compounds. For emissions of NO_X (assuming full conversion to NO_2), potential plant damage could begin to occur with 24-hour NO_2 concentrations of 15 to 50 parts per billion (ppb) (USFS 1992). From the modeling results, the maximum annual concentration of NO_2 is below 1.0 microgram per cubic meter (μ/m^3) (about 1.1 ppb).

3.5.2.3 Ammonia Release

The Cogeneration Project uses anhydrous ammonia in its emissions control system. The project will include numerous design features, including water deluge systems, to minimize the possibility of an ammonia release, and to prevent the transport of any ammonia that is accidentally released. If anhydrous ammonia were released and transported offsite, it would not be expected to adversely affect agricultural crops because, with the exception of the hybrid poplars, no agricultural crops are located near the proposed project site. Furthermore, anhydrous ammonia is a chemical made up of one part nitrogen (N) and three parts hydrogen (H_3) and is one of the most widely used sources of nitrogen for plant growth. In the event of an ammonia release it would be in a gaseous state and would most likely be released in minor amount over time. This type of release would likely have no significant negative impacts on the hybrid poplar trees.

3.5.3 Environmental Impacts of the No Action Alternative

3.5.3.1 Agricultural Crops

If the proposed project did not occur, harvesting of hybrid poplars would likely occur eventually. Because the area is zoned as heavy impact industrial, it is likely that future development of the site would eventually impact some or all of the poplar trees.

3.5.3.2 Livestock

Regardless of the alternative, there would be no impacts to existing livestock land associated with the proposed project site. Development of mitigation measures north of Grandview Road to offset potential loss of wetlands on the Cogeneration site, as currently proposed, will not impact active pasturelands.

3.5.4 Mitigation Measures

3.5.4.1 Agricultural Lands

The loss of a relatively small area (0.5-acres) of agricultural area (hybrid poplar tree farm area) due to the construction of the plant and associated infrastructure, access roads and lay down areas is negligible. Currently, BP does not have any specific plans or schedules to harvest the trees. In view of the low market prices for pulpwood, it is unlikely that poplar tree farming practices will continue in the future. Therefore, no mitigation is proposed.

3.5.4.2 Livestock

No mitigation measures are proposed.

3.5.5 Cumulative Impacts

The project site is zoned as Heavy Impact Industrial by Whatcom County, and is located within the Cherry Point Major Industrial Urban Growth Area/ Port Industrial Zone as defined in the Whatcom County Comprehensive Plan. The potential cumulative impacts on agricultural land have been considered in the comprehensive planning and zoning process. Nevertheless, the small loss (0.5 acres) of planted hybrid poplars would result in a relatively small contribution to any cumulative impact on agricultural land.

The potential loss of some grazing land north of Grandview Road on BP property would not contribute to a significant cumulative loss of grazing land on BP property because this area is incrementally being set aside as conservation easements and mitigation areas. The proposed action is consistent with that strategy. There would be no cumulative loss of livestock in the area due to the construction and operation of the proposed Cogeneration Project because there will be enough remaining pastureland to accommodate the head of cattle currently grazing on the lands north of Grandview Road.

3.5.6 Significant Unavoidable Adverse Impacts

There are no significant unavoidable adverse impacts to agricultural lands or livestock that would result from the proposed project.